

Daniel E. Vinals-Garcia

dvinals@bu.edu | (201) 699-3892 | U.S Citizen| Security Clearance | English and Spanish

Portfolio: <https://vinals-robotics.com/>

EDUCATION

Boston University: Robotic and Autonomous Systems Master's Program: GPA: 3.83 | May 2025 | Boston, MA

- Recipient of the Amazon Robotics Day One Fellowship
- Relevant Coursework: Deep Learning, Medical Robotics, and Robot Motion Planning

Boston University: Mechanical Engineering| May 2023 | Boston, MA

EXPERIENCE

Robotic Mechatronics Design Engineer| July 2024- present|Amazon Robotics, North Reading, MA

- Lead the design, fabrication, and testing of advanced robotic arm hardware for warehouse fulfillment tasks
- Develop and implement full-stack robotic systems utilizing point cloud cameras and sophisticated path planning algorithms.
- Conduct cutting-edge research and studies to develop future robotic technologies, contributing to the company's long-term innovation strategy.
- Collaborate with cross-functional teams to integrate hardware and software solutions, ensuring seamless operation of robotic systems.

Robotic Mechanical Design Engineer| January 2023- August 2023| MIT Lincoln Lab, Lexington, MA

- Designed, fabricated, and tested patented R&D hardware for AI-GUIDE (Artificial Intelligence-Guided Ultrasound Interventional Device) which is a semi-autonomous medical device in development for the Department of Defense.

R&D Engineering Intern | August 2022 - October 2022| Cleana, Inc. , Boston, MA

- Designed and manufactured an Arduino-based testing rig for mechanically-driven automatic self-lifting toilet seats.
- Assisted in R&D product design using SolidWorks, 3D printing, and CNC machining.

Manufacturing Engineering Lab Assistant | January 2021 - December 2022| EPIC Lab, Boston University, Boston, MA

- Operated various manufacturing equipment including CNC machines, laser cutters, and 3D printers to produce client-requested parts.
- Designed and fabricated custom fixtures to support manufacturing processes.
- Provided technical consultation to students on optimal design choices for manufacturability.

Engineering Researcher | June 2022 - December 2022| Andersson Lab, Boston University, MA

- Designed and programmed autonomous quadcopters using Raspberry Pi, Motion Capturing Cameras, and Python.
- Developed PID controllers for precise quadcopter position and orientation control.
- Utilized ROS for simulation and testing of quadcopter behavior.

PROJECTS

Autonomous Pipe Cutting Saw| ME 560 Project | September 2023- December 2023

- Designed a machine that can autonomously cut pipes of various diameters and lengths in SolidWorks.
- Produced an extensive BOM and financial justification analysis.

Autonomous Strawberry Harvesting Robot | Senior Capstone Project | September 2022- May 2023

- Designed a robot that can autonomously detect strawberries that are ready to be harvested using visual recognition methods.
- Designed and manufactured the hardware for moving the robot and clipping the strawberries from the stem.
- Programmed a path planning algorithm to control the robot to harvest the strawberry.

SKILLS

Software & Programming: SolidWorks, C/C++, Python, MATLAB, ROS, PyBullet, PyTorch, Neural Networks, Simulink, FEA.

Robotics & Control: Motion Planning(Potential Fields, A*, trajectory generation), PID Controllers, Inverse Kinematics, Sensor Fusion, Eye-to-Hand Calibration, Computer Vision, Arduino, Raspberry Pi.

Manufacturing & Prototyping: CNC Mills/Lathes, 3D Printing (FDM, SLA), Laser/Waterjet Cutting, Circuit Design, GD&T

Project Management:Financial Analysis and Budgeting, Strategic Project Planning and Execution, Risk Assessment and Mitigation, Technical Documentation and Reporting, Cross-functional Team Leadership, Effective Verbal and Written Communication

